



Contribution ID: 178

Type: Talk

How accreting black holes may shape their surroundings through AGN feedback

Sunday 6 December 2015 16:40 (20 minutes)

Black holes in active galactic nuclei (AGN) respond to the accretion process by feeding back energy and momentum into the surroundings. Such AGN feedback is generally invoked to quench star formation in host galaxies, either by heating or removing the ambient gas. However, feedback from the accreting black hole may also play other roles in galaxy evolution. We consider the role of radiation pressure on dust in driving outflows on galactic scales, and the possibility of AGN feedback triggering star formation within those feedback-driven outflows. In this picture, the accreting black hole is responsible for both driving star formation in the galaxy ("positive feedback"), as well as clearing dusty gas out of the host ("negative feedback"). I will discuss how the central black hole may shape not only the development of its own host galaxy, but also the evolution of the whole surrounding environment.

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Session Classification: 16 - Black holes